Claims

1. A mixture of two particulate phases to be used in the production of a green compact that can be sintered at higher temperatures, wherein A) the first phase contains particles that consist of a metal and/or a metal alloy and/or a metal compound; and B) the second phase contains particles selected from the group of the inorganic compounds which at temperatures beyond 400 DEG C do not release any decomposition products that are interstitially soluble in the sintering metal phase and/or react with said phase to form stable compounds.

2. A mixture as claimed in claim 1, characterised in that for the second phase inorganic compounds are used which contain elements interstitially soluble in the sintering metal phase in a bond the free enthalpy of formation of which at the sintering temperature is more negative than the free solution enthalpy of this element in the sintering metal phase and/or the free reaction enthalpy with this metal phase.

3. A mixture as claimed in claim 2, characterised in that the second phase does not contain any particles which contain carbon.

4. A mixture as claimed in claim 2, characterised in that the second phase does not contain any particles which contain nitrogen.

5. A mixture as claimed in claim 2, characterised in that the second phase does not contain any particles which contain sulphur.

6. A mixture as claimed in claim 2, characterised in that the second phase does not contain any particles which contain phosphorus.

7. A mixture as claimed in any of the claims 1 to 6, characterised in that the inorganic compounds are selected from the group of the alkali halogenides or alkaline earth halogenides.

8. A mixture as claimed in claim 7, characterised in that the inorganic compounds are selected from the following group: NaCl, CaF_2, K_3AlF_6 and Na_3AlF_6.

9. A mixture as claimed in any of the claims 1 to 8, characterised in that the bodies of the first and/or the second phase are agglomerates or shaped corpuscles of powder particles which are kept in place by means of a binder that disintegrates and/or evaporates at temperatures below the beginning of the sintering process.

10. A mixture as claimed in any of the claims 1 to 9, characterised in that the first phase comprises thermally unstable oxides and/or nitrides and/or hydrides of at least one of the metals which form the sintered alloy.

11. A mixture as claimed in any of the claims 1 to 10, characterised in that the first phase comprises particles consisting of titanium or titanium alloys.

12. A mixture as claimed in any of the claims 1 to 11, characterised in that the first phase comprises particles consisting of titanium hydride.

13. A mixture as claimed in any of the claims 1 to 12, characterised in that at least part of the particles of the first phase are provided with a metal coating which in contact with the other components of the first phase form, at least at the beginning of the sintering process, a low melting point alloy and that after termination of the sintering process the concentration of this metal in the alloy corresponds to the desired value.

14. A mixture as claimed in any of the claims 1 to 13, characterised in that in addition to the first and second phases it contains a third phase in the form of an organic or inorganic binder in a composition corresponding to that used in powder injection moulding.

15. A method for producing a shaped body that can be sintered at higher temperatures as claimed in any of the claims 1 to 14, characterised in that the first and second phases composing the mixture are homogeneously mixed and that subsequently said mixture is inserted into a mould which at the sintering temperature is thermally and chemically stable.

16. A method for producing a shaped body that can be sintered at higher temperatures, as claimed in any of the claims 1 to 14, characterised in that the three phases composing the mixture are homogeneously mixed and that subsequently said homogeneous mixture is mechanically compacted to form a green compact.

17. A shaped body capable of being sintered, which is obtained by one of the methods according to claim 15 or 16.

18. A method for producing shaped metal bodies with interconnecting pore structures by using the shaped body capable of being sintered as claimed in claim 17, characterised by the following procedure step: heating of the green compact until the particles of the first phase are sintered so as to form an interconnecting pore structure, the particles of the second phase being eliminated from the pores of the shaped body during or subsequent to the sintering process.

19. A method as claimed in claim 18, characterised in that the elimination of the particles of the second phase takes place prior to or during the sintering process at a temperature beyond 400 DEG C..

20. A method as claimed in claim 18, characterised in that the elimination of the particles of the second phase takes place subsequent to the sintering process by dissolving out said particles using a solvent.

21. A method as claimed in any of the claims 15 to 20, characterised in that after having undergone the sintering process, the shaped body is treated with a liquid and/or a vaporous alkali metal or alkaline earth metal.

22. A shaped metal body obtained in accordance with any of the method claims 15 to 21.

23. A shaped metal body as claimed in claim 22, characterised in that the pores of the interconnecting pore structure have a diameter inferior to 0.4 mm.

24. A utilisation of the shaped metal body as claimed in claim 22 or 23 as a surgical implant or as a coating for a surgical implant.

25. A utilisation of the shaped metal body as claimed in claim 22 or 23 as a structural member for applications in lightweight construction.

26. A utilisation of the shaped metal body as claimed in claim 22 or 23 as an electrode material.